

September 22, 2021

Mr. Dick Vande Bossche
Vice President – ONEOK Rockies Midstream Operations
ONEOK Rockies Midstream, L.L.C.
100 West Fifth Street
Tulsa, OK, 74103

Re: Air Pollution Control
Permit to Construct

Dear Mr. Vande Bossche:

Pursuant to the Air Pollution Control Rules of the State of North Dakota, the Department of Environmental Quality (Department) has reviewed the application dated June 18, 2021, to obtain a Permit to Construct for the ONEOK Rockies Midstream, L.L.C., Beavertail Compressor Station located in McKenzie County, ND.


Enclosed is a copy of the Department's proposed Permit to Construct No. ACP-018131 v1.0 for the facility. Before making final determinations on the permit application, the Department provides for public comment by means of the enclosed public notice and provides for a concurrent 30-day Environmental Protection Agency (EPA) review. As indicated in the notice, the 30-day public comment period will begin September 24, 2021, and end on October 23, 2021. Public comment documents will be made available at: <https://deq.nd.gov/AQ/PublicCom.aspx>.

All comments received will be considered in the final determination concerning the issuance of the permit. The Department will take final action on the permit application following the public comment period and the EPA review period. You will be notified in writing of our final determination.

Please contact me at (701)328-5283 or at cristy.jones@nd.gov with any questions.

Sincerely,



 Cristy Jones
Environmental Scientist
Division of Air Quality

CMJ:saj

Enc:

xc: Daniel Fagnant EPA/R8

4201 Normandy Street | Bismarck ND 58503-1324 | Fax 701-328-5200 | deq.nd.gov

Director's Office
701-328-5150

Division of
Air Quality
701-328-5188

Division of
Municipal Facilities
701-328-5211

Division of
Waste Management
701-328-5166

Division of
Water Quality
701-328-5210

Division of Chemistry
701-328-6140
2635 East Main Ave
Bismarck ND 58501

NOTICE OF INTENT TO ISSUE AN
AIR POLLUTION CONTROL
PERMIT TO CONSTRUCT

Take notice that the North Dakota Department of Environmental Quality (NDDEQ) proposes to issue an Air Pollution Control Permit to Construct for the ONEOK Rockies Midstream, L.L.C., Beavertail Compressor Station in accordance with the North Dakota Air Pollution Control Rules. The facility compresses field gas from nearby oil and gas production wells prior to being sent to a gas plant for further processing. The project involves a proposal to increase the number of natural gas-fired compressor engines onsite from five to nine, and to modify the permitted emission rates of existing engines. The facility currently operates under the original permit to construct (ACP-17900 v1.0). The facility is located at Sec. 25, T150N R97W in McKenzie, ND. The ONEOK Rockies Midstream, L.L.C mailing address is 100 West Fifth Street, Tulsa, OK 74103.

Preliminary evaluations made by NDDEQ staff indicate that the project will comply with all applicable Air Pollution Control Rules and there will be no significant detrimental effects to air quality.

A thirty-day public comment period for the draft permit will begin September 24, 2021, and end on October 23, 2021. Direct comments in writing to the North Dakota Department of Environmental Quality, Division of Air Quality, 4201 Normandy Street, 2nd Floor, Bismarck, ND 58503-1324 or email AirQuality@nd.gov, Re: Public Comment Permit Number ACP-018131 v1.0. Please note that, to be considered, comments submitted by email must be sent to the email address listed; comments sent to any other email address **will not** be considered. Comments must be received by 11:59 p.m. central time on the last day of the public comment period to be considered in the final permit determination. A public hearing regarding issuance of the permit will be held if a significant degree of public interest exists as determined by the NDDEQ. Requests for a public hearing must be received in writing by the NDDEQ before the end of the public comment period.

The application, NDDEQ analysis and draft permit are available for review at the above address and on the NDDEQ website at <https://deq.nd.gov/AQ/PublicCom.aspx>. A copy of these documents may be obtained by writing to the Division of Air Quality or contacting Cristy Jones at (701)328-5283 or by email at cristy.jones@nd.gov.

Dated this 22nd day of September 2021

James L. Semerad
Director
Division of Air Quality

**AIR POLLUTION CONTROL
PERMIT TO CONSTRUCT**

Pursuant to Chapter 23.1-06 of the North Dakota Century Code, and the Air Pollution Control Rules of the State of North Dakota (Article 33.1-15 of the North Dakota Administrative Code), and in reliance on statements and representations heretofore made by the owner designated below, a Permit to Construct is hereby issued authorizing such owner to construct and initially operate the source unit(s) at the location designated below. This Permit to Construct is subject to all applicable rules and orders now or hereafter in effect of the North Dakota Department of Environmental Quality (Department) and to any conditions specified below:

I. General Information:

- A. **Permit to Construct Number:** ACP-018131 v1.0
- B. **Source:**
1. **Name:** ONEOK Rockies Midstream, L.L.C.
 2. **Location:** Beavertail Compressor Station
2574 114M Avenue NW
Watford City, ND 58854
47.785861, -103.040277
Sec. 25, T150N, R97W
McKenzie County, North Dakota
 3. **Source Type:** Compressor Station
 4. **Existing Equipment at the Facility to be Modified:**

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine rated at 2,370 bhp (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-1 A, B	C-1	Oxidation Catalyst
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine rated at 2,370 bhp (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-2 A, B	C-2	Oxidation Catalyst

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine rated at 2,370 bhp (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-3 A, B	C-3	Oxidation Catalyst
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine rated at 2,370 bhp (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-4 A, B	C-4	Oxidation Catalyst
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine rated at 2,370 bhp (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-5 A, B	C-5	Oxidation Catalyst

^A CO and VOC emission limit updated per Permit to Construct No. 018131 v1.0.

^B Oxidation catalyst design efficiency and operating efficiency for the removal of CO and formaldehyde are 80%.

5. Equipment to be added to the Facility:

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine rated at 2,370 bhp (2021) (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-6 ^A	C-6	Oxidation Catalyst
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine rated at 2,370 bhp (2021) (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-7 ^A	C-7	Oxidation Catalyst
Waukesha F3524 GSI (4SRB) natural gas-fired compressor engine rated at 840 bhp (2021) (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-8 ^B	C-8	Oxidation Catalyst
Waukesha F3524 GSI (4SRB) natural gas-fired compressor engine rated at 840 bhp (2021) (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-9 ^B	C-9	Oxidation Catalyst

^A Oxidation catalyst design efficiency and operating efficiency for the removal of CO and formaldehyde are 80%.

^B Oxidation catalyst design efficiency and operating efficiency for the removal of CO and formaldehyde are 90%.

C. Owner/Operator (Permit Applicant):

1. Name: ONEOK Rockies Midstream, L.L.C.
2. Address: 100 West Fifth Street
Tulsa, OK 74103
3. Application Date: June 18, 2021

II. **Conditions:** This Permit to Construct allows operation of the above-mentioned new and modified equipment at the source. The source may be operated under this Permit to Construct until a Permit to Operate is issued unless this permit is suspended or revoked. The source is subject to all applicable rules, regulations, and orders now or hereafter in effect of the North Dakota Department of Environmental Quality and to the conditions specified below.

A. **Emission Limits:** Emission limits from the operation of the source unit(s) identified in Item I.B of this Permit to Construct (hereafter referred to as "permit") are as follows. Source units not listed are subject to the applicable emission limits specified in the North Dakota Air Pollution Control Rules.

Emission Unit Description	EU	EP	Pollutant / Parameter	Emission Limit ^A
Caterpillar (4SLB) engines	C-1 through C-7	C-1 through C-7	NO _x	3.66 lb/hr and 0.70 g/hp-hr or 82 ppmvd @ 15% O ₂ ^B
			CO	2.61 lb/hr and 0.50 g/hp-hr or 270 ppmvd @ 15% O ₂ ^B
			VOC	3.66 lb/hr and 0.7 g/hp-hr or 60 ppmvd @ 15% O ₂ ^B
			Opacity	20% ^C
Waukesha (4SRB) engines	C-8 through C-9	C-8 through C-9	NO _x	1.85 lb/hr and 1.0 g/hp-hr or 82 ppmvd @ 15% O ₂ ^B
			CO	2.31 lb/hr and 1.25 g/hp-hr or 270 ppmvd @ 15% O ₂ ^B
			VOC	1.30 lb/hr and 0.7 g/hp-hr or 60 ppmvd @ 15% O ₂ ^B
			Opacity	20% ^C

- A Emission limits apply to each individual emission point.
- B The emission limits in ppmvd (at 15% O₂) are from 40 CFR 60, Subpart JJJJ.
- C 40% permissible for not more than on six-minute period per hour.

DRAFT

B. Emissions Testing:

1. Initial Testing of Compressor Engines: Within 180 days after initial startup of new compressor engines (EUs C-6 through C-9), and within 180 days of permit issuance for the existing compressor engines (EUs C-1 through C-5), the permittee shall conduct emissions tests at the emission units listed below using an independent testing firm, to determine the compliance status of the facility with respect to the emission limits specified in Condition II.A. Emissions testing shall be conducted for the pollutant(s) listed below in accordance with EPA Reference Methods listed in 40 CFR 60, Appendix A. Test methods other than those listed below may be used upon approval by the Department.

Emission Unit Description	EP	Pollutant/Parameter	Number of Runs	Length of Runs	EPA Ref. Method(s)
Caterpillar (4SLB) engines	C-1 through C-7	NO _x CO VOC	3	60 minutes	7E, 10, and 25, or 320
Waukesha (4SRB) engines	C-8 through C-9	NO _x CO VOC	3	60 minutes	7E, 10, and 25, or 320

A signed copy of the test results shall be furnished to the Department within 60 days of the test date. The basis for this condition is NDAC 33.1-15-01-12 which is hereby incorporated into this permit by reference. To facilitate preparing for and conducting such tests, and to facilitate reporting the test results to the Department, the permittee shall follow the procedures and formats in the Department's Emission Testing Guideline.

2. Notification: The permittee shall notify the Department using the form in the Emission Testing Guideline, or its equivalent, at least 30 calendar days in advance of any tests of emissions of air contaminants required by the Department. If the permittee is unable to conduct the performance test on the scheduled date, the permittee shall notify the Department at least five days prior to the scheduled test date and coordinate a new test date with the Department.
3. Sampling Ports/Access: Sampling ports shall be provided downstream of all emission control devices and in a flue, conduit, duct, stack or chimney arranged to conduct emissions to the ambient air.

The ports shall be located to allow for reliable sampling and shall be adequate for test methods applicable to the facility. Safe sampling platforms and safe access to the platforms shall be provided. Plans and specifications showing the size and location of the ports, platform and utilities shall be submitted to the Department for review and approval.

4. Other Testing:

- a) The Department may require the permittee to have tests conducted to determine the emission of air contaminants from any source, whenever the Department has reason to believe that an emission of a contaminant not addressed by the permit applicant is occurring, or the emission of a contaminant in excess of that allowed by this permit is occurring. The Department may specify testing methods to be used in accordance with good professional practice. The Department may observe the testing. All tests shall be conducted by reputable, qualified personnel. A signed copy of the test results shall be furnished to the Department within 60 days of the test date.

All tests shall be completed and the results calculated in accordance with test procedures approved by the Department. All tests shall be made under the direction of persons qualified by training or experience in the field of air pollution control as approved by the Department.

- b) The Department may conduct tests of emissions of air contaminants from any source. Upon request of the Department, the permittee shall provide necessary holes in stacks or ducts and such other safe and proper sampling and testing facilities, exclusive of instruments and sensing devices, as may be necessary for proper determination of the emission of air contaminants.

- C. **Fuel Restriction:** The compressor engines (EUs C-1 through C-9) are restricted to combusting only field gas or natural gas containing no more than 2 grains of sulfur per 100 standard cubic feet.

- D. **New Source Performance Standards (NSPS):** The owner/operator shall comply with all applicable requirements of the following NSPS subparts as referenced in Chapter 33.1-15-12 of the North Dakota Air Pollution Control Rules and 40 CFR 60:

1. **40 CFR 60, Subpart JJJJ:** The owner/operator shall comply with all applicable requirements of 40 CFR 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (EUs C-1 through C-9).
2. **40 CFR 60, Subpart OOOO and OOOOa:** Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After August 23, 2011, and on or before September 18, 2015, and Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015 (EUs C-1 through C-9 and FUG).

E. **Maximum Achievable Control Technology Standards (MACT):** The permittee shall comply with all applicable requirements of the following MACT subparts as referenced in Chapter 33.1-15-22 of the North Dakota Air Pollution Control Rules and 40 CFR 63.

1. **40 CFR 63, Subpart ZZZZ** - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (EUs C-1 through C-9). The North Dakota Department of Environmental Quality has not adopted the area source provisions of this subpart. Please send all documentation to EPA at the address below.

U.S. EPA Region 8
1595 Wynkoop Street
Mail Code 8ENF – AT
Denver, CO 80202-1129

F. **Construction:** Construction of the above-described facility shall be in accordance with information provided in the permit application as well as any plans, specifications and supporting data submitted to the Department. The Department shall be notified ten days in advance of any significant deviations from the specifications furnished. The issuance of this Permit to Construct may be suspended or revoked if the Department determines that a significant deviation from the plans and specifications furnished has been or is to be made.

Any violation of a condition issued as part of this permit to construct as well as any construction which proceeds in variance with any information submitted in the application, is regarded as a violation of construction authority and is subject to enforcement action.

G. **Title V Permit to Operate:** Within one year after startup of the units covered by this Permit to Construct, the owner/operator shall submit a permit application for a Title V Permit to Operate for the facility.

H. **Like-Kind Engine Replacement:** This permit allows the permittee to replace an existing compressor engine with a like-kind engine. Replacement is subject to the following conditions:

1. The Department must be notified within 10 days after change-out of the engine.
2. The replacement engine shall operate in the same manner, provide no increase in throughput and have equal or less emissions than the engine it is replacing.
3. The date of manufacture of the replacement engine must be included in the notification. The facility must comply with any applicable federal

standards (e.g. NSPS, MACT) triggered by the replacement.

4. The replacement engine is subject to the same state emission limits as the existing engine in addition to any NSPS or MACT emission limit that is applicable. Testing shall be conducted to confirm compliance with the emission limits within 180 days after start-up of the engine.
- I. **Stack Heights:** The stack height of each engine shall be at least 1.5 times the nearby building height. A nearby building is any building located a distance of less than five times the building height from the stack.
- J. **Storage Tanks:** All stationary volatile organic compounds storage tanks shall be equipped with a submerged fill pipe in accordance with NDAC 33.1-15-07-01.3.
- K. **Organic Compounds Emissions:** The permittee shall comply with all applicable requirements of NDAC 33.1-15-07 – Control of Organic Compounds Emissions.
- L. **Permit Invalidation:** This permit shall become invalid if construction is not commenced within eighteen months after issuance of such permit, if construction is discontinued for a period of eighteen months or more; or if construction is not completed within a reasonable time.
- M. **Fugitive Emissions:** The release of fugitive emissions shall comply with the applicable requirements in NDAC 33.1-15-17.
- N. **Annual Emission Inventory/Annual Production Reports:** The owner/operator shall submit an annual emission inventory report and/or an annual production report upon Department request, on forms supplied or approved by the Department.
- O. **Source Operations:** Operations at the installation shall be in accordance with statements, representations, procedures and supporting data contained in the initial application, and any supplemental information or application(s) submitted thereafter. Any operations not listed in this permit are subject to all applicable North Dakota Air Pollution Control Rules.
- P. **Alterations, Modifications or Changes:** Any alteration, repairing, expansion, or change in the method of operation of the source which results in the emission of an additional type or greater amount of air contaminants or which results in an increase in the ambient concentration of any air contaminant, must be reviewed and approved by the Department prior to the start of such alteration, repairing, expansion or change in the method of operation.
- Q. **Air Pollution from Internal Combustion Engines:** The permittee shall comply with all applicable requirements of NDAC 33.1-15-08-01 – Internal Combustion Engine Emissions Restricted.

- R. **Recordkeeping:** The owner/operator shall maintain any compliance monitoring records required by this permit or applicable requirements. The owner/operator shall retain records of all required monitoring data and support information for a period of at least five years from the date of the monitoring sample, measurement, report or application. Support information may include all calibration and maintenance records and all original strip-chart recordings/computer printouts for continuous monitoring instrumentation, and copies of all reports required by the permit.
- S. **Nuisance or Danger:** This permit shall in no way authorize the maintenance of a nuisance or a danger to public health or safety.
- T. **Malfunction Notification:** The owner/operator shall notify the Department of any malfunction which can be expected to last longer than twenty-four hours and can cause the emission of air contaminants in violation of applicable rules and regulations.
- U. **Operation of Air Pollution Control Equipment:** The owner/operator shall maintain and operate all air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.
- V. **Transfer of Permit to Construct:** The holder of a permit to construct may not transfer such permit without prior approval from the Department.
- W. **Right of Entry:** Any duly authorized officer, employee or agent of the North Dakota Department of Environmental Quality may enter and inspect any property, premise or place at which the source listed in Item I.B of this permit is located at any time for the purpose of ascertaining the state of compliance with the North Dakota Air Pollution Control Rules. The Department may conduct tests and take samples of air contaminants, fuel, processing material, and other materials which affect or may affect emissions of air contaminants from any source. The Department shall have the right to access and copy any records required by the Department's rules and to inspect monitoring equipment located on the premises.
- X. **Other Regulations:** The owner/operator of the source unit(s) described in Item I.B of this permit shall comply with all State and Federal environmental laws and rules. In addition, the owner/operator shall comply with all local burning, fire, zoning, and other applicable ordinances, codes, rules and regulations.
- W. **Permit Issuance:** This permit is issued in reliance upon the accuracy and completeness of the information set forth in the application. Notwithstanding the tentative nature of this information, the conditions of this permit herein become, upon the effective date of this permit, enforceable by the Department pursuant to any remedies it now has, or may in the future have, under the North Dakota Air Pollution Control Law, NDCC Chapter 23.1-06.

- Z. **Odor Restrictions:** The owner/operator shall not discharge into the ambient air any objectionable odorous air contaminant which is in excess of the limits established in NDAC 33.1-15-16.

The owner/operator shall not discharge into the ambient air hydrogen sulfide (H₂S) in concentrations that would be objectionable on land owned or leased by the complainant or in areas normally accessed by the general public. For the purpose of complaint resolution, two samples with concentrations greater than 0.05 parts per million (50 parts per billion) sampled at least 15 minutes apart within a two-hour period and measured in accordance with Section 33.1-15-16-04 constitute a violation.

- AA. **Sampling and Testing:** The Department may require the owner/operator to conduct tests to determine the emission rate of air contaminants from the source. The Department may observe the testing and may specify testing methods to be used. A signed copy of the test results shall be furnished to the Department within 60 days of the test date. The basis for this condition is NDAC 33.1-15-01-12 which is hereby incorporated into this permit by reference. To facilitate preparing for and conducting such tests, and to facilitate reporting the test results to the Department, the owner/operator shall follow the procedures and formats in the Department's Emission Testing Guideline.

FOR THE NORTH DAKOTA DEPARTMENT
OF ENVIRONMENTAL QUALITY

Date _____

By _____
James L. Semerad
Director
Division of Air Quality

AIR QUALITY EFFECTS ANALYSIS
FOR
PERMIT TO CONSTRUCT
ACP-018131 v1.0

- I. **Date of Review:**
September 14, 2021 (Draft)
- II. **Applicant:**
ONEOK Rockies Midstream, L.L.C.
100 West Fifth Street
Tulsa, OK 74103
- III. **Source Location:**
Beavertail Compressor Station
2574 - 114M Avenue NW
Watford City, ND 58854
47.785861, -103.040277
Sec. 25, T150N, R97W
McKenzie County, North Dakota

IV. **Introduction and Background:**

On June 18, 2021, the Department received a permit to construct application for the Beavertail Compressor Station from ONEOK Rockies Midstream, L.L.C. (ORM), which currently operates under Permit to Construct No. ACP-17900 v1.0 (formerly, PTC No. PTC18044).

The scope of this project includes the following:

- the addition of two 2,370 hp compressor engines (EUs C6 and C7),
- the addition of two 840 hp compressor engines (EUs C8 and C9),
- update the carbon monoxide (CO) and volatile organic compound (VOC) permitted emission limits for the existing compressor engines (EUs C1 through C5) from 3.92 lb/hr to 2.61 lb/hr and from 1.10 lb/hr to 3.66 lb/hr, respectively.

Currently, the facility is considered a true minor source. However, the proposed modifications to the ORM Beavertail Compressor Station will result in the facility-wide potential to emit (PTE) to be greater than 100 tons per year (tpy) for NO_x (128.93 tpy), CO (101.05 tpy), and VOC (191.43 tpy); therefore, it will be a major source per Title V (40 CFR Part 70) rules.

Table 1 - Existing Equipment to be Modified

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine rated at 2,370 bhp (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-1 ^{A, B}	C-1	Oxidation Catalyst
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine rated at 2,370 bhp (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-2 ^{A, B}	C-2	Oxidation Catalyst
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine rated at 2,370 bhp (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-3 ^{A, B}	C-3	Oxidation Catalyst
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine rated at 2,370 bhp (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-4 ^{A, B}	C-4	Oxidation Catalyst
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine rated at 2,370 bhp (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-5 ^{A, B}	C-5	Oxidation Catalyst

^A CO and VOC emission limit updated per Permit to Construct No. 018131 v1.0.

^B Oxidation catalyst design efficiency and operating efficiency for the removal of CO and formaldehyde are 80%.

Table 2 - New Equipment to be added to the Facility

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine rated at 2,370 bhp (2021) (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-6 ^A	C-6	Oxidation Catalyst
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine rated at 2,370 bhp (2021) (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-7 ^A	C-7	Oxidation Catalyst
Waukesha F3524 GSI (4SRB) natural gas-fired compressor engine rated at 840 bhp (2021) (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-8 ^B	C-8	Oxidation Catalyst

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Waukesha F3524 GSI (4SRB) natural gas-fired compressor engine rated at 840 bhp (2021) (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-9 ^B	C-9	Oxidation Catalyst

^A Oxidation catalyst design efficiency and operating efficiency for the removal of CO and formaldehyde are 80%.

^B Oxidation catalyst design efficiency and operating efficiency for the removal of CO and formaldehyde are 90%.

V. Allowable/Expected Emissions:

Potential Emissions are as follows:

Table 3 - PTE Calculations (in tons per year) ^A

Emission Unit Description	EU	PM/PM ₁₀ /PM _{2.5} (tpy)	SO ₂ (tpy)	NO _x (tpy)	CO (tpy)	VOCs (tpy)	HCHO (tpy)	HAPs ^B (tpy)
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine	C-1	0.68/0.68/0.68	0.04	16.02	11.44	16.02	1.19	1.47
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine	C-2	0.68/0.68/0.68	0.04	16.02	11.44	16.02	1.19	1.47
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine	C-3	0.68/0.68/0.68	0.04	16.02	11.44	16.02	1.19	1.47
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine	C-4	0.68/0.68/0.68	0.04	16.02	11.44	16.02	1.19	1.47
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine	C-5	0.68/0.68/0.68	0.04	16.02	11.44	16.02	1.19	1.47
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine	C-6	0.68/0.68/0.68	0.04	16.02	11.44	16.02	1.19	1.47
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engine	C-7	0.68/0.68/0.68	0.04	16.02	11.44	16.02	1.19	1.47
Waukesha F3524 GSI (4SRB) natural gas-fired compressor engine	C-8	0.60/0.60/0.60	0.02	8.11	10.14	5.68	0.21	0.28

Emission Unit Description	EU	PM/PM ₁₀ /PM _{2.5} (tpy)	SO ₂ (tpy)	NO _x (tpy)	CO (tpy)	VOCs (tpy)	HCHO (tpy)	HAPs ^B (tpy)
Waukesha F3524 GSI (4SRB) natural gas-fired compressor engine	C-9	0.60/0.60/0.60	0.02	8.11	10.14	5.68	0.21	0.28
Emergency/Process Flare	FL-1	0.04	---	0.58	0.67	0.27	---	0.01
Ten 400-barrel condensate tanks	T-1 Through T-10	---	---	---	---	29.40 (2.94 each)	---	1.20 (0.12 each)
Two 400-barrel Produced Water Tanks	WTK-1 & WTK-2	---	---	---	---	1.62 (0.81 each)	---	0.06 (0.03 each)
One 400-barrel LACT Divert Tank	LTK-1	---	---	---	---	0.24	---	0.01
Condensate Truck Loading	TL-1	---	---	---	---	20.00	---	0.84
Methanol tank	MTK-1	---	---	---	---	0.34	---	0.34
Fugitive Emissions	FUG	---	---	---	---	11.02	---	1.22
Blowdowns and maintenance venting	BD	---	---	---	---	5.06	---	0.10
Total without Fugitives		6.00/6.00/6.00	0.32	128.94	101.03	180.43	8.75	13.41
Total with Fugitives		6.00/6.00/6.00	0.32	128.94	101.03	191.45	8.75	14.63

- ^A Pollutants are abbreviated as follows:
PM: particulate matter
PM₁₀: particulate matter under 10 microns (<10 µg), includes PM_{2.5}.
PM_{2.5}: particulate matter under 2.5 microns (<2.5 µg)
SO₂: sulfur dioxide
NO_x: nitrogen oxides
VOC: volatile organic compounds
CO: carbon monoxide
HAPs: hazardous air pollutants as defined in Section 112(b) of the Clean Air Act Amendments of 1990

- ^B Since all combined HAPs are less than 10 tpy, individual HAPs are not listed.

See application for more detailed emission calculations.

Table 4 – Facility-Wide Emissions Change (in tons per year)

Facility-Wide Emissions	PM/PM ₁₀ /PM _{2.5} (tpy)	SO ₂ (tpy)	NO _x (tpy)	CO (tpy)	VOCs (tpy)	HAPs (tpy)
Before Modification ^A	3.46/3.46/3.46	0.20	80.67	86.49	91.96	13.00
After Modification ^B	6.00/6.00/6.00	0.32	128.94	101.03	191.45	14.63
Change in Emissions	+2.54	+0.12	+48.27	+14.54	+99.49	-1.63

- ^A Values taken from PTC No. ACP-17900 v1.0 application.

- ^B Values taken from PTC No. ACP-018131 v1.0 application.

VI. **Applicable Standards:**

Table 5 - Applicable Standards

Caterpillar G3608 LE (4SLB) natural gas-fired compressor engines	C-1 through C-7	NDAC 33.1-15-03-02 NDAC 33.1-15-03-03 NDAC 33.1-15-12, Subpart JJJJ NDAC 33.1-15-12, Subpart OOOOa 40 CFR 63, Subpart ZZZZ [EPA ^A]
Waukesha F3524 GSI (4SRB) natural gas-fired compressor engines	C-8 through C-9	NDAC 33.1-15-03-02 NDAC 33.1-15-03-03 NDAC 33.1-15-12, Subpart JJJJ NDAC 33.1-15-12, Subpart OOOOa 40 CFR 63, Subpart ZZZZ [EPA ^A]
Fugitives	FUG	NDAC 33.1-15-17-04 NDAC 33.1-15-12, Subpart OOOOa

^A The Department has not adopted the area requirements of this subpart; EPA Region 8 is the implementing and enforcement authority for this subpart at minor sources of hazardous air pollutants.

A. **NDAC 33.1-15-02 - Ambient Air Quality Standards:**

The facility must comply with the Ambient Air Quality Standards (AAQS). Other requirements of this chapter include general prohibitions against harming health, causing damage to plants, animals, other property and visible degradation. In addition to these standards, compliance with the Department's Air Toxics Policy is required.

Expected Compliance

In the *Criteria Pollutant Modeling Requirements for a Permit to Construct* Department memorandum dated October 6, 2014, dispersion modeling is required if the potential emissions from a project exceeds 100 tpy for NO_x, 100 tpy for SO₂, 40 tpy for PM₁₀ and 25 tpy for PM_{2.5}, and emissions vent from stacks with a height of at least 1.5 times the nearby building height. The facility meets the preceding requirements and criteria pollutant modeling is not required to demonstrate compliance with NAAQS.

Total combined HAP emissions are 14.63 tpy, with formaldehyde the largest single HAP at 8.75 tpy. The facility is expected to comply with ambient air quality standards and the *Air Toxics Policy*¹ based on level of emissions.

¹ August 25, 2010 NDDEQ *Policy for the Control of Hazardous Air Pollutant (HAP) Emissions in ND (aka Air Toxics Policy)*, https://deq.nd.gov/publications/AQ/policy/Modeling/Air_Toxics_Policy.pdf

B. **NDAC 33.1-15-03 - Restriction of Emission of Visible Air Contaminants:**

This chapter restricts the amount of visible air contaminants, primarily particulate matter, from flares and fuel-burning units.

Expected Compliance

The facility has several fuel-burning units subject to this chapter. Opacity requirements for each applicable unit are listed in the table below.

Table 6 - Opacity Limits

Emission Unit Description	EU	Pollutant/ Parameter	Emission Limit
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engines	C-1 through C-7	Opacity	20% ^A
Waukesha F3524 GSI (4SRB) natural gas-fired compressor engines	C-8 through C-9	Opacity	20% ^A

^A 40% permissible for not more than on six-minute period per hour.

Based on the fuels used, visible air emissions are expected to be well below the 20% opacity limit established by this chapter. Compliance with this chapter is expected.

C. **NDAC 33.1-15-06 - Emissions of Sulfur Compounds Restricted**

This chapter applies to any installation in which fuel is burned in which the SO₂ emissions are substantially due to the sulfur content of the fuel burned and in which the fuel is burned primarily to produce heat. This chapter is not applicable to installations which are subject to a SO₂ emission limit under Chapter 33.1-15-12, Standards for Performance for New Stationary Sources, or installations which burn pipeline quality natural gas.

Expected Compliance

The facility is restricted to combusting only natural gas containing no more than 2 grains of sulfur per 100 standard cubic feet, therefore compliance with this chapter is expected.

D. **NDAC 33.1-15-07 - Control of Organic Compounds Emissions:**

This chapter requires volatile organic storage tanks to be equipped with a submerged fill pipe if the tank is greater than 1,000 gallons (31.75 barrels). All tanks are greater than 1,000 gallons (31.75 barrels) and must be equipped with a submerged fill pipe.

Expected Compliance

The ten 400-barrel condensate tanks and the 400-barrel LACT divert tank are controlled by a vapor recovery unit, and tanks greater than 1,000 gallons are equipped with a submerged fill pipe. In addition, ORM has accepted a federally enforceable limit of 5.99 tpy for each hydrocarbon storage tank. Based on the control strategy for the applicable units, compliance with this chapter is expected.

E. **NDAC 33.1-15-12 - Standards of Performance for New Stationary Sources [40 Code of Federal Regulations Part 60 (40 CFR Part 60)]:**

This chapter adopts most of the Standards of Performance for New Stationary Sources (NSPS) under 40 CFR Part 60. The facility is subject to subparts listed in the table below under 40 CFR Part 60 which have been adopted by North Dakota.

1. **Subpart A - General Provisions**

The facility is subject to one or more NSPS (NDAC 33.1-15-12/40 CFR 60) and is subject to this subpart, compliance is expected.

Expected Compliance

Subpart A contains the NSPS General Provisions, compliance with the requirements of Subpart A is expected through compliance with each applicable NSPS subpart.

2. **Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines**

This rule states that any lean-burn engine manufactured after July 1, 2007, with a horsepower greater than 500 hp that commences construction after June 12, 2006, and rich burn engines greater than 25 hp manufactured after July 8, 2008, are subject to this rule. The new engines meet these specifications and are manufactured after July 1, 2010; therefore, they are subject to the requirements of this subpart. Requirements of this subpart include, but are not limited to:

- Emission limits for NO_x, CO and VOC
- Emission testing every 8,760 hours or 3 years, whichever comes first
- Notification, monitoring, reporting and recordkeeping requirements

Expected Compliance

The facility shall comply with all applicable requirements of this subpart. Including the installation and proper maintenance and operation of catalytic oxidizers controls. Periodic engine testing will be required for NO_x, CO, and VOC emissions.

Table 7 - NSPS JJJJ Emission Limits

Emission Unit Description	EU	EP	Pollutant / Parameter	Emission Limit ^A
Caterpillar (4SLB) engines	C-1 through C-7	C-1 through C-7	NO _x	3.66 lb/hr and 0.70 g/hp-hr or 82 ppmvd @ 15% O ₂ ^B
			CO	2.61 lb/hr and 0.50 g/hp-hr or 270 ppmvd @ 15% O ₂ ^B
			VOC	3.66 lb/hr and 0.7 g/hp-hr or 60 ppmvd @ 15% O ₂ ^B
Waukesha (4SRB) engines	C-8 through C-9	C-8 through C-9	NO _x	1.85 lb/hr and 1.0 g/hp-hr or 82 ppmvd @ 15% O ₂ ^B
			CO	2.31 lb/hr and 1.25 g/hp-hr or 270 ppmvd @ 15% O ₂ ^B
			VOC	1.30 lb/hr and 0.7 g/hp-hr or 60 ppmvd @ 15% O ₂ ^B

^A Emission limits apply to each individual emission point.

^B The emission limit ppmvd (at 15% O₂) are from 40 CFR 60, Subpart JJJJ.

3. **Subpart OOOOa – Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015**

This subpart establishes emission standards and compliance schedules for the control of greenhouse gases (GHGs), volatile organic compounds (VOC) and sulfur dioxide (SO₂) emissions from affected facilities in the crude oil and natural gas

source category that commence construction, modification or reconstruction after September 18, 2015.

This Subpart defines a *compressor station* as a site that has any permanent combination of one or more compressors that move natural gas at increased pressure through gathering pipelines. A *modification* to a compressor station occurs when **an additional compressor is installed at the compressor station or when one or more compressors are replaced by compressors with a greater horsepower**. If one or more compressors are replaced with compressors with equal or less horsepower, then installation of the compressors does not trigger a modification.

Therefore, if additional horsepower is added to a site, the whole site becomes subject to this Subpart.

Expected Compliance

Storage tanks have a potential to emit of less than 6 tpy each. Under this subpart there are rod packing requirements for the compressor engine and for minimizing fugitive leaks from facility components. The company has a leak detection and repair (LDAR) program requirement and other requirements under this subpart.

Fugitive emissions monitoring must be conducted per NDAC 33.1-15-12, Subpart 0000a. Compliance with this chapter is expected.

F. **NDAC 33.1-15-14 - Designated Air Contaminant Sources, Permit to Construct, Minor Source Permit to Operate, Title V Permit to Operate.**

This chapter requires the facility to obtain a Permit to Construct prior to the installation of sources of air pollution. This chapter also applies to Permit to Operate requirements for facilities that have sources of air pollution.

Expected Compliance

ORM has submitted an application for a Permit to Construct and has met these requirements.

G. **NDAC 33.1-15-16 - Restriction of Odorous Air Contaminants**

The permittee of this facility will not discharge into the ambient air any objectionable odorous contaminant which is in excess of the limits established in this chapter.

Expected Compliance

Based on Department experience with sources having similar types of emissions, the facility is expected to comply with this chapter.

H. **NDAC 33.1-15-17 - Restriction of Fugitive Emissions**

This chapter requires the control of fugitive emissions.

Expected Compliance

VOC fugitive emissions are regulated under NDAC 33.1-15-12, Subpart OOOOa. Compliance with this chapter is expected.

I. **NDAC 33.1-15-22 - Emission Standards for Hazardous Air Pollutants for Source Categories**

1. **Subpart A-General Provisions**

This chapter adopts the 40 CFR Part 63 regulations, also known as the Maximum Achievable Control Technology (MACT) standards, which regulates HAPs from regulated source categories. Typically, these standards apply to major sources of air pollution that are a regulated source category. In addition to the major source requirements, some of the regulations have “area source” standards (for non-major sources). Some of the area source standards have not been adopted by the Department and compliance will be determined by the United States Environmental Protection Agency (USEPA) (e.g. 40 CFR Part 63, Subpart ZZZZ area source provisions have not been adopted by the Department).

Expected Compliance

Subpart A contains the MACT General Provisions. Compliance with the requirements of Subpart A is expected through compliance with each applicable MACT subpart.

2. **Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines**

The facility appears to have engines subject to the requirements under this subpart. The requirements of Subpart ZZZZ for the engines are met by complying with the requirements of NDAC 33.1-15-12, Subpart JJJJ.

Expected Compliance

Table 8 - MACT Requirements

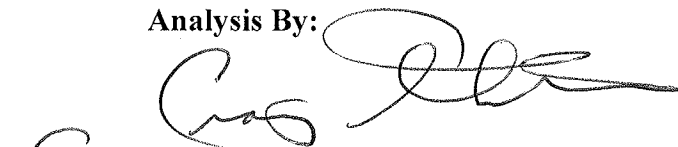
Emission Unit Description	Emission Unit (EU)	Requirements
Caterpillar G3608 LE (4SLB) natural gas-fired compressor engines	C-1 through C-7	Comply with NDAC 33.1-15-12, Subpart JJJJ
Waukesha F3524 GSI (4SRB) natural gas-fired compressor engines	C-8 through C-9	Comply with NDAC 33.1-15-12, Subpart JJJJ

The requirements of Subpart ZZZZ for the engines are met by complying with the requirements of NDAC 33.1-15-12 [40 CFR 60], Subpart JJJJ. The Department has not adopted Subpart ZZZZ at area sources such as this facility. EPA Region 8, not the North Dakota Department of Environmental Quality, is the implementing and enforcement authority. All required documentation must be submitted to EPA Region 8.

VII. Summary and Recommendations:

The facility is expected to comply with applicable federal and State rules. It is recommended that ACP-018131 v1.0 be issued to ONEOK Rockies Midstream, L.L.C. for the Beavertail Compressor Station.

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